PHILADELPHIA MEDICAL TIMES.

SATURDAY, NOVEMBER 28, 1874.

ORIGINAL COMMUNICATIONS.

SANITY AND INSANITY.

BY N. ROE BRADNER, A.M., M.D.,

Late of the Pennsylvania Hospital for the Insane, Philadelphia.

AT the request of a distinguished member of the Philadelphia bar, I have devoted some spare moments to the consideration of a problem proposed for solution, and will say at the beginning that it is one uniformly thrust at medical experts in insanity, too frequently with undue consideration on the part of the legal questioner, although in this instance the writer well knows that the problem was proposed in good faith and after the subject had religiously received the questioner's own diligent consideration and study.

Insanity has been regarded as a kind of disease; and physicians, whose calling is the treatment of disease, have been largely consulted and interested in the subject, both generally and as to individual cases. If insanity is a disease, it is the only one which is not entirely intrusted to the medical profession. So uniformly is the name of the law associated with the subject, that in some forms and stages of the attack the sufferer's friends are uncertain whether to send for a lawyer or a doctor. Were it a subject easily comprehended by one proficient in either of these professions,—requiring of him little or no extra thought or skill,—it would matter not to which branch of learning the subject would fall heir; but, if it too often baffles the best efforts of each and both, methinks it were worthy of adoption by the joint powers of law and medicine, promising its guardians as it does abundant honor, even to two of the most honorable professions, when they shall have faithfully attended it through its own periods of incompetence.

It is yet a subject upon which there is a great diversity of opinion, even among men eminent in those professions, the researches of which should not leave it in perpetual obscurity. To define insanity satisfactorily—to propose a few words that would at all times and under all circumstances explicitly demonstrate just what insanity is—would be no easy task; but more difficult, if not impossible, would it be to accomplish the object of my friend,—to draw a line accurately dividing sanity from insanity, designating exactly the point where sanity leaves off and insanity begins.

I believe a more positive example than this of a uniform mistake made by legal gentlemen as well as by some physicians, in judging of the nature of insanity, is seldom made. If it were possible to set up a well-defined character truly labelled, "This, and nothing but this, is insanity," the converse would be no less practicable, viz., to designate a certain character as the type of perfection, and say, "This, and nothing but this, is sanity." Any one conversant with the vagaries of the human mind well knows that a more absurd idea than this could not be invented, and that a character thus appointed, if it were that of a perfect man, invincible by any theory of insanity, would excel that of ninety-nine per cent. of all men. It is no part of the theory of psychologists that ninety-nine per cent. of all men are insane; but if any abstract line be drawn that would positively exclude every person amenable to a suspicion of insanity, and a power be established to declare to those who would be regarded as sane, "Thus far and no farther shalt thou go," certainly not one per cent. of us could pass muster. Now, this theory is all false; and it is a fact that will be well learned by him who seeks a true knowledge of the disease, whether medical student or jurist, that justly to decide the question of an individual's sanity he is not to be compared with any particular idol as the standard character of sanity, but with his own natural and normal self. Certainly, what would be insanity in one person is not necessarily so in another; and if this be so, a more unjust rule for judging of his sanity than that of the particular line could scarcely be conceived. It cannot even boast, we are glad, of modern invention, but looks back for its origin to Grecian mythology, and should be considered of the same relation to the scale of justice as the famous bed of Procrustes. Those who were so unfortunate as to lie upon the bed of this bold Grecian must correspond most accurately and literally in their length: if they were longer than the bed, they were too long, and their feet perhaps were chopped off; and if too short to fill the bed, they were sadly deficient in length, and were stretched out. In either case, the bed being the exact length allotted by Procrustes to man, its occupant's length must be made to correspond,—the deficiencies and superfluities of nature being thus summarily rectified. Truly, there can be no more justice in creating a standard mind than a standard stature; and we doubt if the prudent lawyer lives, no matter how often he may have attempted to confound a medical witness with demands for a particular gauge of mental soundness, who will not after due and careful consideration join with us and pray that the Procrustean view of insanity for which the legal profession has contended may meet with no favor in our age of enlightenment. These remarks have particular reference to those forms of insanity called doubtful or obscure, where, in the words of Dr. Bucknill, "its recognition is arduous in the extreme." "Ploughmen and blacksmiths," the same eminent psychologist has said, would be sufficient to decide when men were insane, if all cases were as plain as some. But, unfortunately, these plain and demonstrative cases are those of the only form of the disease recognized or acknowledged by a larger part of mankind. The public is reluctant to believe a man is insane unless, in the words of a worthy police-officer, "he is wild and raging, his eyes standing out, and his hair standing up;" and in the same measure there seems to be a distrust of medical experts whose observation and experience have enabled them to do all that has been done in this important and

difficult work. Nay, too often the opinion of blacksmith, ploughman, or other person wholly unacquainted with the subject is accepted in preference to that of the expert, although he may have devoted to and exhausted the best years of his life in its exclusive study.

In a recent court, a gentleman learned in his profession, and high in office, being asked if the person in question was insane, replied in the following words: "Of course he is insane: I am not one of those who consider it necessary to live five or ten years in an insane-asylum to tell whether or not a man is insane." The very next question put to him was concerning the condition of the urine in a certain form and stage of insanity; and what could he answer more or less than he did,—that he was not sufficiently experienced in the disease to be enabled to answer? This gentleman would scarcely have attempted to depreciate the experience of physicians in hospitals for the insane, as he did in his first answer, if he had known that he must so soon call such a one to his rescue. By just such examples as this it is often made apparent that the study of the mind, sometimes of a single mind, must be the work of time. The study of insanity, too, like that of nature, can scarcely be profitable except in the mode of practical observation. The man who has been blind from his birth can form but an imperfect idea of the beauties revealed by vision, and one without experience with insanity cannot correctly judge of the difficulty in deciding between some cases of sanity and insanity. The infirmity may be such as to be detected by the expert at the first interview, or so obscure that the most skilful physician may be uncertain after many and protracted meetings. True, it may be said that insanity so difficult of discovery may seem far-fetched; but it has been my experience that where insanity is discovered after having been so long concealed or disguised, it is most often a dangerous order of the disease, with promise of disastrous results. The importance, then, of a thorough, lengthy, and unobstructed inquiry into each and every question of obscure insanity cannot be overestimated by those desirous of arriving at a just and reliable decision; and now, as time advances, the necessity for an extended knowledge of this grave disorder is being more keenly felt, for, with a pace no less rapid than the course of time, insanity is growing and increasing upon us. It is, however, to those called the criminal insane that these remarks are intended to invite the especial consideration of thoughtful people, and I cannot allow this opportunity to pass without entering my protest against the unqualified name of "criminal insane" as applied to this class of sufferers.

It is just and humane that such a distinction should be made between the outrageous acts of those of sound and unsound mind, that the irresponsible shall be spared the punishment justly due the malicious criminal; but our enlightened humanity has but half expressed itself when, on the ground of insanity, we acquit the accused of crime and yet brand him "criminal insane." The outrageous acts of insanity, like those of infancy or febrile delirium, are those of disease and incompetence, regretted most keenly by the unfortunate agent after he has become enabled to understand the nature of the act committed. True, murder is crime, but when an infant causes the death of another through his inability to comprehend the terror of death or consequence of the particular act of mischief, the child should not and forever be branded criminal; and surely where any act, no matter how terrible its character, is positively that of insanity, the unfortunate actor should be regarded with the same consideration with which we are constrained to look upon those of infancy. And, presto! while I write, the district attorney for this city has in his official capacity uttered a declaration, in but few words, that should add lustre to any name. In a murder-trial just closed, the defence of insanity being established, Mr. Mann boldly declared, "It was not this defendant, but a disease,—insanity,—that did the murder." Crime should be punished; insanity should be cured.

The physician and the lawyer should be as vigilant in protecting the insane from punishment as in demanding that a criminal shall be punished. Crime, too, is the real enemy of insanity; it is the wolf that knows the immunity of the proper kind of clothing; and hence the plea of insanity is a frequent one of defence in legal trials of supposed criminals. It is an awful responsibility that rests upon him who judges whether or not the plea is just; and it is here that the careful psychologist can often detect unmistakable proof of the disease even in one whose sanity had never before been questioned. Dear reader, your best brother may be as innocent of crime as the youngest babe, and a disease—insanity—may place him in the criminal cell before another sun has risen and set. If so, would you call upon ploughmen to investigate his mental condition? Ah, no! The most learned and skilful of psychologists would then be scarcely equal to your demands; but that host of mankind with whom you probably are now numbered would not believe in your suffering brother's insanity, unless, forsooth, he was roaring, furious, and uncontrollable. Should their clamor for justice result in a legalized execution of your insane brother, the barbarous act would not be the first, nor the second, nor yet the third instance of its kind for which American law and justice must blush in shame.

Let not the wicked escape the punishment their crime merits, however cunningly they may conceive and devise a defence of insanity; but doubly more let us be careful to avoid all legal murder of our insane.

And now a concluding query: How are we to distinguish between the acts of criminals and those of the insane? Space will not now admit of an anticipated review of the varying opinions expressed by those high in authority, both here and abroad, and the brilliant dictum of Dr. Isaac Ray alone will be quoted: "In trials of criminal cases, the single and only essential question is whether the act was or was not the offspring of disease." Thus did the eminent medical jurist strike the key-note of justice that should forever silence those discordant

theories that cry aloud for plumb and gauge wherewith to measure each and every mind in comparison with their own particular Procrustean idol of sanity. True, it may be objected that the proposition of my venerable friend does not absolutely shorten the investigation, and the same lengthy observation of doubtful cases must still be granted to an expert before he can satisfy himself whether or not the individual is of diseased mind, or that his disease is the parent of any particular act. But why shorten the time? Why should not medical experts be allowed abundant time and opportunity for the most searching investigation into those cases, the facts of which they are expected to maintain against the most embarrassing opposition?

Need the course of justice be in any way diverted by postponing any trial until no reasonable doubt exists as to the mental condition of the prisoner?

In the State of Maine there is a law that whenever insanity is to be the defence in a criminal case, the prisoner shall be sent to the State Hospital for the Insane, to be observed by the medical officers until they are satisfied as to his mental condition. Of the first thirty persons thus observed at the hospital, six were found to be sane and twenty-four insane. Who is there to contend that the jails of our own proud State do not contain many poor victims of this terrible disease, unmercifully suffering in a manner prohibited in Maine for a quarter of a century?—nay, who are only awaiting the progress of the law to add their number to those who have suffered the full penalty of crime, and whose only crime is insanity?

OVARIOTOMY—SUCCESSFUL OPERATION.

BY W. H. MYERS, M.D.,

St. Joseph Hospital, Fort Wayne, Ind.

C. S., aged 36 years, residing in Leo, Cedar Creek Township, Allen County, Indiana; married nineteen years; mother of nine children, eldest eighteen years, youngest two years, one abortion. Emaciated; habits of life regular; surface of body cool; no glandular swellings of the loins; varicose veins on the right limb, without œdema of the feet.

The measurements on July 29, 1874, were as follows: Umbilical level, forty-one and a half inches; ensiform cartilage to the umbilicus, nine inches; umbilicus to symphysis pubis, nine and a half inches; from right anterior superior spine of ilium to umbilicus, eighteen and a half inches; from left anterior superior spine of ilium to umbilicus, nine inches. Mobility of tumor marked; evidence of adhesions on the right side. Over the abdominal surface dilated veins were numerous. Fluctuation decided; sounds on percussion, resonance on the left side, dulness on the right side.

The situation of the uterus natural; neck to the right; mobility normal; tumor projects; can be felt in the cul-de-sac. Womb-sound introduced into the cavity of the womb two and a half inches; rectal examination revealed nothing abnormal; catamenia, date of commencement, fourteen years; no sudden suppressions; cessation three months ago; urinary organs normal; occasional pain in the right hypochondrium; rests best on the right side. Signs of ill health began fifteen months ago; right limb weak, and also pain in the right groin. She says she discovered the tumor in March or April, 1873. Enlargement rapid; first on the right side; not long until it became central.

April, 1874.—Dr. Woodworth and myself used the aspirator, and obtained an albuminoid fluid. From this puncture local peritonitis supervened, so that she was quite ill for nearly one week, and from it, we may infer, the adhesions originated that we encountered during the operation.

The diagnosis was made of a multilocular ovarian tumor, originating from the right ovary, and it was inferred from the rapid growth that life could be prolonged but a few months.

The patient was ordered good diet, baths, and iron, continued for several months, up to the time of the operation. Forty-eight hours before the operation she took one ounce of castor oil, and from this last period up to the operation one grain of opium every six hours. The morning before the operation her diet was restricted to gruel, and a simple enema was administered. She was dressed in flannel, with woollen stockings. A light gutta-percha cloth was placed in front of her, and through it was cut an opening sufficiently large to receive the tumor, and the edges fastened to the skin by a circle of adhesive plaster.

The operation was performed Thursday, August 6, at 2 P.M., at St. Joseph Hospital, Fort Wayne, Ind., in the presence of Drs. A. Woolley, of Warsaw, and A. D. Emmanuel, of Antwerp, and I was assisted by Drs. B. S. Woodworth, I. N. Rosenthal, T. P. McCullough, T. J. Dills, C. Lihler, H. V. Sweringen, I. N. Myers, E. L. Tons, James E. Moore, and F. Criswell. The patient having been etherized by Drs. I. N. Myers and E. L. Tons, she was brought into a small, retired, private ward, and placed upon a table, twenty inches wide and five feet in length.

A median incision about five and a half inches long was now made from the umbilicus to the pubes. Very little hemorrhage followed. Adhesions were found anteriorly, obliterating all traces of distinction between the walls of the tumor and the peritoneum. Discovering a point on the left side in the lower third of the incision where the adhesions did not exist, I was enabled to introduce a sound, No. 8, and with it to easily break up all adhesions in front, and then liberate the bond of union between the peritoneum and the cyst-wall.

Tapping the cyst with a large trocar, the fluid passed out through the canula, and was conducted by an india-rubber tube into a vessel underneath the table. About fifteen pints escaped in this way. An incision was now made into the tumor sufficiently large to allow the hand to pass into it in order to relieve the weight of the tumor. Cysts which had not been emptied before were now punctured, and the walls or septa were then broken down by the hand. The interior consisted of semi-solid masses, divided by trabeculæ into numerous cavities filled with a viscid, colloid substance. The diminished tumor was now drawn through the incision. As we found omental adhesions, which were quite extensive and bled upon the slightest touch, we tied the omentum beyond the adhesions, and divided between the ligature and the attachments. A portion of the omentum larger than the hand was removed, and the ligature brought out at the upper portion of the incision. All the ligatures and sutures used had been thoroughly carbolized, the material being Chinese silk.

The contents of the tumor having been broken down and the adhesions broken up, traction was now made, the edges of the wound being held by Dr. B. S. Woodworth so as to approximate the cyst and to prevent the escape of any portion of the intestinal canal, whilst I secured the pedicle by Atlee's clamp and separated the tumor with the knife.

The fluid and semi-fluid contents of the tumor

amounted to thirty-four pints. The cyst weighed six and a half pounds. Considering the specific gravity of the fluid in the third group of fluids usually or always belonging to multilocular cysts as from 1010 to 1040, the weight of the cyst with its contents was between forty and forty-five pounds.

The pedicle came from the right ovary; was seven inches in length, two and a half inches in width, and half an inch thick; it was easily managed, and there was no hemorrhage.

After the clamp was applied, it was so placed as to rest in the lower part of the wound. The opposite ovary was healthy, and the uterus normal.

The abdomen having been thoroughly cleansed, the wound was closed by silk ligatures about eighteen inches in length, threaded at each end on a strong straight needle. The needles were introduced from within outwards, through the peritoneum and the whole thickness of the abdominal wall, the ends of the sutures being held by an assistant, and a flat sponge placed over the bowels. All bleeding having ceased, the protecting sponge was removed, the sutures tied, and the ends of the threads cut off.

The part of the pedicle included in the clamp was mummified by the application of the persulphate of iron, and over it was placed charpie. Strips of adhesive plaster, the width of four fingers, were placed posteriorly and drawn over the front part of the abdomen, and made to fit snugly. Over these strips was placed cotton-wool, and over this was pinned a woollen binder, close-fitting. The patient was now placed in bed, with bottles of hot water to her feet and blankets about her, and morphia administered hypodermically. Threatening vomiting was prevented by pulverized ice internally and sinapisms over the epigastrium. No depression followed the operation.

Thursday, 4 P.M.—Pulse, 104; temperature, 97°; respiration, 32. During the next twenty-four hours the patient passed sixteen fluidounces of urine.

Friday, A.M.—Pulse, 108; temperature, 101°; respiration, 24. Twelve fluidounces of urine.

Saturday.—Pulse, 112; temperature, 103°; respiration, 24. Passed sixteen fluidounces of urine. Rested well; slept nearly the entire night.

Sunday.—Pulse, 100; temperature, 98°; respiration, 18. Slept well during the night. No thirst; continued the ice. Some symptoms of diarrhœa. At midnight, introduced a suppository of opium, and at 6 A.M., another. Surface moist. Free of pain. No flatulence. All this time she has subsisted upon a milk diet exclusively.

Monday.—Pulse, 100; temperature, 98½°. Rested well during the night. Continued milk diet. Opium suppositories continued. Slight abdominal pains from flatulence. Urine, sixteen fluidounces.

Tuesday.—Pulse, 100; temperature, 98½°; respiration, 18. Urine, eighteen fluidounces. Appetite good. Entirely free from pain; hopeful. Wound dressed by cutting the plaster and re-supplying it from the cut ends by attaching the new strips—dry dressing. The wound almost entirely healed; the pedicle dried up, will soon be removed; the slightest trace of pus only.

Wednesday (morning).—Pulse, 88; temperature, 97½°; respiration, 18. Slept during the night. 12 M.—Pulse, 84; temperature, 98½°; respiration, 19. Urine, sixteen ounces. Milk diet continued. Evening.—Pulse, 88; temperature, 99°; respiration, 16. No thirst. Appetite good. For the first time is lying upon her right side.

Thursday (morning).—Pulse, 88; temperature, 98¾°; respiration, 18. Urine, sixteen ounces. Evening.—Pulse, 90; temperature, 100¼°. 9½ P.M.—Free movement of the bowels without enema or purgative; relieved her of flatulence and pain. Slight abdominal pain. 11 P.M.—I found her sleeping. Pulse, 80; temperature, 98½°; respiration, 18. Inclined to sleep. Directed the nurse to continue the suppositories of opium every six hours. She is now perspiring.

Friday, 6 A.M.—Slept well. One slight movement; costive, not liquid. No tympanitis. Pulse, 78; temperature, 98½°; respiration, 18. Appetite good. 9 A.M.—The stitches were removed, and the wound was found to have almost entirely united; pedicle dried up, and the clamp only a source of irritation; this we removed cautiously. After the application of powdered persulphate of iron, we applied dry charpie over the line of the incision, and the edges of the wound were supported by narrow strips of adhesive plaster. We now readjusted the broad strips of adhesive plaster, over them cotton-wool, and supported all by a flannel bandage. Appetite good. Beef-tea to-day, with bread. 6 P.M.—Pulse, 80; temperature, 97½°; respiration, 16.

Saturday, A.M.—Pulse, 80; temperature, 96°. Slept well during the night. Appetite good. 6 P.M.—Pulse, 84; temperature, 96½°. Very comfortable. Line of the incision united, nearly free from pus; pedicle united to abdominal walls. Nothing remains but the ligature applied to the omentum. One movement from the bowels; not liquid. No distention. Progressing finely towards a rapid recovery.

The omental ligature came away on the twenty-seventh day. The rebound to health was rapid and complete. This may be attributed partially to the preparatory treatment, and the complete isolation of the patient, with absolute rest.

NOTES ON THE PERFORMANCES OF TWO ONE-FIFTIETH OBJECTIVES.

BY JOSEPH G. RICHARDSON, M.D.,

Microscopist to the Pennsylvania Hospital.

IN selecting the subject of one-fiftieth objectives for my remarks this evening, I have been chiefly influenced by the fact that through the kindness of Dr. J. H. McQuillen, Corresponding Secretary, and Mr. Charles Stodder, a corresponding member of the Section, I have recently had the opportunity of examining a Tolles one-fiftieth immersion, and of comparing it with my own Powell and Leland's dry one-fiftieth, and also with my immersion one-twenty-fifth, made by Wales.

My experience with lenses of this focal length is too restricted to enable me to contribute much information regarding them, and my intention is therefore chiefly to elicit discussion, and to narrate the results of my own trials with the most scrupulous honesty, and, so far as lies in my power, without prejudice.

Among the test diatoms upon which I have brought these objectives to bear, the Pleurosigma angulatum offers, of course, no difficulties.

The transverse striæ of Surirella gemma are likewise easily shown by all these lenses, but the finer longitudinal lines are not distinctly visible by gas-light. Under the employment of monochromatic sunlight (Col. Woodward's ammonio-sulphate of copper method), these faint markings, which Frey says are "only to be mastered with much pains," are clearly visible even under the one-twenty-fifth. It is especially worthy of note that, in my experiments

a few days since, the basket-like arrangement of these lines, produced according to Hartnack by elongated hexagonal areolations, first came distinctly into view when the Wales immersion one-twenty-fifth was exchanged for the Tolles immersion one-fiftieth, and after I had vainly sought for it with the former. In this observation the obliquity of light, the kind of illumination, and my skill (or unskilfulness) as a microscopist were all constant factors, so that the superior performance seems certainly due to the superior qualities of the higher-power lens.

The transverse lines of Amphipleura pellucida, displayed by the aid of monochromatic sunlight, were better defined by the Tolles immersion one-fiftieth than by the Powell and Leland's dry one-fiftieth or by the Wales immersion one-twenty-fifth, the two latter only exhibiting the markings near the edges of the frustules.

Of the so-called Podura scales (of which we were informed at our last meeting it was "impossible to obtain slides with covers thin enough to be used"), I have now upon the table some good specimens of my own mounting, under cover about one-five-hundredth of an inch thick, which you will have an opportunity of "using" in testing the lens. As the result of my own comparative trials with central light, I find that the definition of the note-of-exclamation-marks afforded by the Tolles one-fiftieth is somewhat superior to that given by the Wales immersion one-twenty-fifth and the Powell and Leland dry one-fiftieth. Its advantage over the latter of these two objectives is very slight, being less marked than that shown when it is applied to some other test-objects. No one of the three lenses bears even the C eye-piece without marked loss of definition, greater in my opinion than that undergone by some of Mr. Tolles' or Mr. Beck's immersion one-tenths, even when combined with the E or No. 5 eye-piece.

Applied to my favorite test-objects, the salivary corpuscles, neither the Tolles, nor the Powell and Leland one-fiftieth, seem to surpass the working of Wales's one-twenty-fifth, either in exhibiting the dancing molecules, or in defining the delicate cell-wall which restricts the movements of the latter. Probably, however, long study and constant practice upon the globules of the saliva have enabled me to obtain proportionately better results in their resolution under my one-twenty-fifth, with which I have chiefly investigated their structure.

The statement of my friend Dr. Hunt that under this one-fiftieth a Bacterium looks like the mast of a ship in a fog, led me to careful examination of these organisms, and I am confident that his description applies chiefly to the object when seen just beyond the proper focus. The Bacterium so focussed seems, it is true, most sharply contrasted to the rest of the field; because, being cylindrical, it acts as an elongated convex lens, and concentrates the light in a line one-twenty-thousandth of an inch this side of its true position. Formerly I made the mistake of supposing that when this area of concentrated light was in focus, I had properly adjusted the instrument, and was much dissatisfied with the Wales one-twenty-fifth because the outline of the object was indistinct. Prolonged study, however, taught me to perceive my blunder, and by correct focusing to bring into view the margins of the Bacterium, limited by a delicate hair-line almost as fine as can be drawn by an ordinary writing-pen; and this I have also done with the Tolles one-fiftieth now under consideration.

The fibrin filaments of coagulating blood, freshly drawn upon a slide, which in persons free from any inflammatory or cachectic tendency often form a test of moderate severity for the higher powers, are well shown under the Tolles one-fiftieth, and by its aid I observed that in one instance the net-work of filaments was confined to the lowest stratum of the drop, immediately in contact with the surface of the slide, and did not extend through the whole depth of the liquor sanguinis.

In order to overcome the insuperable obstacle which has hitherto prevented a one-fiftieth from being properly tested in Philadelphia, I have devised the following very simple method of mounting diatoms, Podura-scales, etc., under "sufficiently thin covers." Select a piece of clear, colorless mica, and, having split it into layers about one-five-hundredth of an inch in thickness, cut it with sharp scissors into squares measuring one inch on a side. Then, with a writing-diamond or otherwise, cut or break the cover of a mounted slide of, for example, amphipleura (to the under surface of which the frustules adhere), into small fragments, say one-tenth of an inch across, and invert one of these upon a fresh slide, to which it should be attached by a minute portion of Damar varnish. Lastly, cover the diatoms, which remain adhering to what is now the upper surface of the fragment of thin glass, with one of your squares of mica, and seal up the latter at the edges with a very little Damar cement. Of course, thin sheets of glass, if they can be procured, may be used instead of mica, and are, I think, decidedly to be preferred, because less liable to become injured under careless manipulation, as well as permitting a somewhat sharper definition.

Finally, in regard to the other important but secondary qualifications of a good lens, I find that both these objectives are not quite achromatic; the Tolles glass being less perfectly corrected in this respect than that of Powell and Leland. Both lenses give a good flat field, and their magnifying power is fully up to the usual standard, as they each afford with the No. 1 or A eye-piece an amplification of over twenty-five hundred diameters.

I think it justly due to Mr. Joseph Zentmayer to add that several of the above-mentioned observations with the one-fiftieth objectives were made, with unexpected satisfaction, upon one of his new student's microscope stands. Although the stage movement in this form of apparatus is by hand only, and the fine adjustment beneath the stage is of a comparatively inexpensive variety, yet such are the delicacy and firmness of its workmanship that there was no difficulty, by careful manipulation, in obtaining excellent results as above stated, even with the highest powers.

PHILADELPHIA
MEDICAL TIMES.
A WEEKLY JOURNAL OF
MEDICAL AND SURGICAL SCIENCE.

The Philadelphia Medical Times is an independent journal, devoted to no ends or interests whatever but those common to all who cultivate the science of medicine. Its columns are open to all those who wish to express their views on any subject coming within its legitimate sphere.

We invite contributions, reports of cases, notes and queries, medical news, and whatever may tend to increase the value of our pages.

All communications must bear the name of the sender (whether the name is to be published or not), and should be addressed to Editor Philadelphia Medical Times, care of the Publishers.

PUBLISHED EVERY SATURDAY BY
J. B. LIPPINCOTT & CO.,
715 and 717 Market St., Philadelphia, and 25 Bond St., New York.

SATURDAY, NOVEMBER 28, 1874.

EDITORIAL.

THE ASSERTED DECADENCE OF PHILADELPHIA AS A MEDICAL CENTRE.

A RECENT issue of the *New York Tribune* contains a long editorial upon New York as a medical centre, so untrue and unjust in its general drift, if not in many of its individual assertions, that we desire to say a few words in reply, especially as the *Philadelphia Medical Times* is quoted in the article. The gist of the column and a half is that New York has, as a medical centre, far outdistanced this city, which is stated to be proven by the facts that there are twice as many students attending the three New York as the two Philadelphia medical schools, that there are many more medical journals published in New York than in Philadelphia, and that the principal text-books of the country are written and published in New York.

Our comment upon these asserted facts is simply that they are not true. The *Medical Times* stated early in the winter, before the full classes were in town, that there were over six hundred medical students in this city: inquiry at the schools shows that the conjoint matriculant list now foots up to seven hundred and ninety. The assertion of the *Tribune* that there are nearly twelve hundred students in attendance on the three schools in New York City we believe to be a gross exaggeration. Our belief rests not merely upon general principles and the published reports of the New York colleges for last year, but also upon specific inquiry among those who are in a position to know. There appear to be about eight hundred students in New York; certainly nine hundred is a very full, if not an excessive, estimate.

The *Tribune* enumerates twelve medical journals as published in New York. Several of them are, strictly speaking, not medical journals; one, at least, not a journal at all. On making out a parallel list for this city, we find that it reaches to the number of ten. Of the New York journals, three or four are still in the year of their birth, and the infant-mortality in our neighbor city is as excessive among journalistic enterprises as among human beings.

If the number of issues printed per year is taken as the basis of comparison, and not merely the number of journalistic titles, Philadelphia is ahead of New York. The latter city gives to the world yearly eighty-seven numbers of medical journals, whilst Philadelphia issues one hundred and sixty numbers. It would be very difficult to get at the official figures, but we believe we are correct in stating that more individuals are reached by the Philadelphia than by the New York medical press.

Taking up the question of text-books: of the seven branches usually taught in the colleges, Philadelphia holds almost undisputed sway over one, and in several is contested only by foreign treatises, whilst New York does not hold the market in a single instance. In *materia medica and therapeutics*, American books written and published in Philadelphia absolutely command the market. In *surgery*, the greatest work extant in the language is that of Prof. Gross of this city; whilst Ashhurst's and the reprint of Erichsen supply almost wholly the demand for less comprehensive treatises. New York contests, it is true, for a share by means of the recent book of Dr. Hamilton. In *obstetrics*, Hodge's great treatise is the only American work of any authority at present on the market. In *physiology*, New York is undoubtedly pre-eminent; but we are sorry to say that Philadelphia reprints of English works largely interfere with the sale of the very meritorious treatises of Draper, Flint, and Dalton. In *anatomy*, the only American work of present authority is the product of a Philadelphia pen. In the *practice of medicine*, both New York and Philadelphia are represented, with, so far as we know, equal sales. In *medical chemistry and toxicology*, Philadelphia has produced several recent standard treatises; New York not any. Indeed, if medical activity is to be measured by the production of successful text-books, our ambitious neighbor is, in racing parlance, "nowhere."

New York is, however, decidedly ahead of this

city in the cultivation as well as in the literature of specialties: this we freely acknowledge; and it seems to us the only danger, so far as New York is concerned, of our city's losing its medical pre-eminence. The causes that have led to this are, we hope, however, dying out. As our allotted space is full, we must reserve their consideration for a future occasion.

We print to-day an article from the pen of Dr. Garretson as a leader, partly in order to give prominence to it, and partly because in many points we agree with the sentiments therein expressed. As comment, we simply reiterate what we have before said, that if dentists are ambitious to be considered medical specialists they must undergo a general medical education; that so long as there are distinct dental colleges giving a peculiar degree, so long will physicians refuse to acknowledge dentists as members of the profession. An individual dentist who has taken the medical degree may assuredly be received as a brother practitioner, but a simple D.D.S. never. The difficulty with the physician practising dentistry is that he is classed by the general and medical public with the mere dentist. Why should there be D.D.S., any more than D.O.S., or D.A.S., or D.T.S., or D.S.M., etc., etc., *ad nauseam?*

LEADING ARTICLES.

UNIVERSALITY IN EDUCATION—SPECIALISM IN PRACTICE.

THE heading of this article, which constitutes a curt putting of a most important matter by a former editor of this journal, serves particularly well as a text to a few thoughts which the writer wishes to present concerning the specialty of Oral Surgery.

It is a fact not to be denied or disputed, that, as communities grow in numbers and in intelligence, so the work of the individual members thereof breaks itself up into the practice of specialties; and this occurs as the result of an organization in man which leads him to take cognizance of results as evidences are presented to him in the practical working of things.

Specialism, however, is a bad thing for the individual man; that is, it is bad for him whose manhood and whose mental powers are merged and allowed to become lost in specialism; it is, on the contrary, a great good thing for a community at large, as is demonstrated by the voice of that common experience out of which the practice obtains and grows.

The bad of specialism finds all the antidote possible in that circularity of education which is the constant reminder to a specialist of the littleness of the work in which he is engaged: it holds him to modesty and to a becoming humility in the presence of the alma mater; it is the balance-wheel.

That the profession at large have long been found disposed to ignore specialties and the specialists is a matter not at all to be wondered at, neither found fault with. Specialists, until the present age, have almost universally proved to be arrant quacks; and the assumption by such of a pretension to belong to the grandest of professions could not possibly have proved else than a stench in the nostrils of the educated and refined. The title of doctor ought to imply a very great deal; and to him whose learning and whose habits of thinking and acting place him on a level with the proper meaning of such a title, it cannot but appear as an offence in any one whose assumed relation with the degree serves but to degrade and to belittle it.

As a specialty, what is known as Dental Surgery has assumed prominent place, and it has come to such position because of the intrinsic merit found in it. It embraces a multitude of doctors,—this term being employed in the fulness of its ordinary meaning,—and it affords harbor for perhaps quite its share of impostors, whose knavery is equalled only by their ignorance and impudence. In the ranks of this specialty, the writer does not hesitate to say, are to be found some of the best-educated men in the country; and, so far as the ethics are concerned, he has as little hesitation in affirming that he has never met with higher sense of honor among practitioners of any profession: the physician at large may claim no precedence over the dentist in this respect.

Like general surgery, the dental specialty has had an up-hill track; and, like surgery at large, it has come to its present position because of the good encompassed in it, and which good the people cannot do without. As a specialty, it is a something fixed; it is a thing that is.

Has it attained to its highest good?

Galen, centuries ago, made the assertion "that the cause of the toothache was known alone to God." In this remark resides, perhaps, the origin of dental inquiry. Compare now this ignorance with the experience comprised in the dental curriculum of to-day. Such a comparison will best show what dentists and dentistry have done.

But what has been accomplished, while it is very much, is seen and felt by the true leaders of this specialty not to be any way near what is to constitute the fulness of its work; hence, year by year, the studies pursued in dental colleges grow wider and wider. Chairs of surgery have been established; chemistry is taught with a thoroughness that leaves little to be accomplished; physiology, not satisfied with the text-books, takes its secrets from organs which pulsate and are alive; diagnosis has long ago passed beyond the mystery of Galen, and seeks to-day for the hidden things which lie among brain-cells and hepatic lobes. To-day, to be a professor in a dental college is to occupy a position that reflects honor on a man, and which

affords the occupant of such a chair a field of great usefulness in which to labor.

Dental surgery, however, is but a little part of a common circle to which its duties pertain; hence, step by step, slowly, it is true, yet surely, is the specialist of this department advancing to a work more worthy his education, and more in correspondence with the claims he puts forth to belong to a learned profession; the dental surgeon is advancing into the oral surgeon.

Oral surgery—while it educates the dentist, simply as a dentist, more soundly and scientifically than heretofore—treats of the diseases and surgery of the mouth, jaws, and associate parts. What it is, the writer cannot but think that he has clearly and explicitly set forth in his book, entitled "A System of Oral Surgery," and he may not but rest under the conviction that many years will not elapse before it will be found that in this new departure the complexities of the surgery of these parts will be rendered not less plain than have been the mysteries of Galen's confusion concerning the cause of toothache. In such a new departure, suffering humanity will come to a gain of not less consequence than that found in the establishment of the specialty of ophthalmic surgery; and who does not understand what great good has been evolved here?

But to be an oral surgeon demands in every respect the same order of education that pertains to the surgeon and physician at large. Hence, all practitioners of dentistry who have advanced into this new field are found possessed of the degrees both of dental and medical colleges; and, as things now exist, these two roads must be passed over before one can come to any ability to practise oral surgery: he must pass through a dental school that he may perfect himself in the knowledge of dental surgery; he must go through the medical college that he may know of general practice. And even yet a deficiency is found. The means to make special study of his special subject the medical school fails properly to furnish. He may listen to a few lectures on the subject of mouth- and face-operations, and the clinic will furnish him distant views of mouth-diseases, but these are not at all sufficient to his purpose. He needs to handle, to operate, and to prescribe for himself.

The oral surgeon needs lessons which, as yet, are widely scattered,—so scattered, indeed, that to attempt to master the subject, as becomes a specialist, is necessarily to involve one's self in expenses which the purse of few students will be found able to bear.

What, now, is the remedy?

No question is so constantly propounded to the writer as the query concerning the manner of studying oral surgery; and it is a confession he is compelled to make that there is no plain answer to it.

The medical college, as at present constituted, cannot make an oral surgeon, neither can the dental school. The one teaches well and fully part of what the student desires to learn, and the other informs him as thoroughly in another direction of the knowledge required; but these are as two end-spans of a bridge the middle arch of which is lacking,—a bridge all right so far as it goes, but over which one cannot pass.

The question is seen, therefore, to resolve itself into one of a new departure,—a departure felt to reside in that same evolution which brought the specialty into being. Should dental schools resolve themselves into full medical colleges? or will it be that the demand shall be met by the establishment of special hospital advantages in connection with the already matured medical institutions?

To one intimately acquainted with the classes of professors connected with the two orders of schools, these queries are not so easy of answer as they would seem to be to him who knows alone either side. Dental colleges are as young men overflowing with the vigor of fresh life. It is a mistake to think these incompetent to the task; it is only that they delay on the Cisalpine side of the Rubicon; once in, they will hardly stop short of Rome. Medical schools, on the contrary, hesitate because they doubt the humor and intentions of the men they would gladly receive into the order of their alumni: they do not fully recognize the stature to which the confrère has developed.

A specialist cannot, and should not, be received into the common brotherhood of medicine without his coming to a common platform as regards all that makes the doctor. The ophthalmic surgeon has recognized this; and to-day he occupies just such a position as it is desirable to enjoy,—he has his special hospitals, but he has no college, no peculiar diploma. His general education is alike with his medical brethren; his privileges are the same.

The writer may here stop. Further than presenting these brief data, he does not feel at liberty to intrude on the pages of this journal. He has desired simply to suggest the consideration of the subject to those who are intending to become oral surgeons, and, as well, to those who are to decide the questions as to how oral surgeons are to be educated. Shall such decision be rendered first by a medical or by a dental school? Will the ranks of oral surgery be filled by those who are to-day physicians, or will the matriculants come from among those who now are at the head of the dental specialty? Come from somewhere they surely must, and will: evolution, like revolution, never goes backwards.

JAS. E. GARRETSON, M.D.

PROCEEDINGS OF SOCIETIES.

AMERICAN PUBLIC HEALTH ASSOCIATION—THIRD ANNUAL MEETING.

SECOND DAY—MORNING SESSION.

THE proceedings were opened by the reading of a paper by Dr. Ezra M. Hunt "*Upon Building-Ground in its Relations to Health and Disease.*"

After going over the various causes of insalubrity dependent upon covering of the surface of the ground by buildings, resulting in increase of ground-water,

defective aeration of sub-structures, etc., the author recommended more perfect systems of drainage as distinct from sewage systems in our city.

At the conclusion of the paper, Dr. Ray, of this city, remarked upon the exceedingly flimsy construction of sewers and drains in Philadelphia. Made of but one thickness of brick, and that porous, and cemented together by mortar containing a large proportion of sand, it was a natural result that the sewage should soak through and permeate the ground in every direction. So wretched, indeed, was often the construction of these sewers, that he had known instances where they had actually fallen in before the workmen had left the ground.

Further remarks upon the subject of drainage and disposal of sewage were made by Drs. Bell and Morris, of New York, and Mr. Warner, of New Haven.

Dr. Stewart, of the Board of Health of Baltimore, gave a sketch of the present condition of affairs in that city as regards the disposal of sewage. Baltimore, Dr. Stewart remarked, is honeycombed with privies; the sanitary arrangements are not good. Many privy-wells are dug forty feet deep in the cellars of the various houses, and are not intended to be cleansed, and the fecal matter is disseminated through the soil, and becomes a fruitful source of typhoid fever.

Mr. Winans has arranged a system of air-tight tanks to be used in certain model tenement-houses which he has built. These are removed, when filled, to some locality outside of the city limits, and then emptied. In Washington, old oil-tanks are used in a similar manner. It is proposed to build a complete system of sewers for Baltimore, the expense to be met by the issue of sewer-bonds; each householder to pay for the privilege of tapping the street-main, as is now done as regards the water-supply.

Dr. Hartshorne followed with some remarks on the unhealthfulness of watering-places, which, owing to defective sanitary arrangements, often become the causes of death to the invalids seeking them.

Dr. S. C. Busey, of Washington, then read a "*Report upon the Gathering, Packing, and Transportation of Fresh Vegetables and Fruits, Competent Inspection, and Free Markets for Producers.*"

The Association then proceeded to the election of members and the transaction of routine business.

AFTERNOON SESSION.

Dr. E. Harris, of New York, presented a "*Report upon the Sanitary Government, Vital Statistics, and Methods of Public Health Administration in the Cities and Large Towns of North America.*"

This report, he remarked, was so occupied by detailed statistics that he would not weary the Association by reading it, but would suggest that it should be referred, as the other papers had been, to the executive committee.

Dr. J. M. Toner, of Washington, D.C., then read a paper entitled "*Notes on some Conditions and Accidents which Endanger, Limit, or Prevent Vaccination from giving Full Protection against Smallpox.*"

Dr. Toner remarked that what he had to say would be of a very practical character, and might seem trite, particularly to those physicians who had devoted themselves to the study of public health. Nevertheless, the fact of the revival of smallpox from time to time in an almost epidemic form is a sufficient cause to claim attention, especially when it occurs, as it does occasionally, in those who had supposed themselves to be protected by vaccination.

Some of the conditions which prevent people from gaining almost complete exemption from smallpox are wholly public in their character, and exist outside of and beyond the control of the physician in civil practice. These are, want of proper appreciation by numbers of people of the safety, utility, and sufficiency of vaccination, and of their own danger; the negligence of some who appreciate the value of the practice, and the utter recklessness of others.

The remedy of most of the evil that rests with the public must be sought through a judicious system of universal vaccination and re-vaccination enforced by law, under a skilful physician employed for the purpose.

There are also defects in the practice of vaccination as at present conducted, but they are of a character to be remedied, corrected, or prevented. Some of these depend upon the condition, age, and habits of the patient; others grow out of the care taken by or of the individual after the virus is introduced; and still others relate to the genuineness of the virus itself, its freshness, its proper introduction, and its security against interference through every stage of its development and decline.

Dr. Toner went on to speak of the various accidents which might interfere with the operation of vaccination and its results, and urged strongly the necessity of practical and special training for public vaccinators. It is of the highest importance that the virus should be fresh and perfectly pure. Of course, nothing could be better than the virus from the animal itself; but the speaker thought that conclusive proof is wanting of the deterioration either in the activity or protective quality of the humanized vaccine lymph, when selected with care, introduced with judgment, and properly guarded from accident.

He then detailed the method of vaccination which he believed the most effectual, advocating especially the use of a sufficient quantity of lymph or crust, and its introduction at two separate points. Failure to induce vaccination was, he remarked, more frequently because of the virus used, or want of skill in the operator, than of insusceptibility of the individual. In the United States the difficulty lies more probably in the insufficient quantity of virus used, rather than in its defective quality. Carelessness on the part of the vaccinators, and the almost exclusive use of the crusts instead of lymph, may also be cited as among the leading factors in the cause of failure.

Dr. Toner does not believe there is any danger of communicating other diseases with the vaccine disease. Marsden, who has vaccinated over fifty thousand individuals, has never observed an instance. Spurious vaccination may occur when the best lymph is used, and may vitiate the results of the operation. Dr. Toner concluded his paper with some practical directions as to the proper method of vaccination.

Dr. Moreau Morris said that several points had occurred to him while Dr. Toner was reading his paper, which he had jotted down, and would read. First, in regard to the frequent failures of vaccination. He had had a good deal of experience in the operation, and believed the cause of failure usually to lie in the imperfection of the virus, or in an improper method of operating. It is not unusual for a practitioner who wishes to vaccinate a patient, to ask his nearest neighbor for some virus. An old crust is produced, or a quill or two which has been kept for an indefinite period, and this is used.

Having had charge of the public vaccination during the late smallpox epidemic in New York, Dr. Morris was surprised at the amount of ignorance and carelessness manifested by many who performed the operation. Some would take an ordinary lancet and make several scarifications from one-eighth to one-ninth of an inch deep, causing considerable bleeding. Then a quill would be rubbed over the surface, and that would be called "vaccination." Of course, under these circumstances, it would rarely "take." Others would

scarify the surface superficially,—an equally useless proceeding. To show the perfectly protective character of proper vaccination, he might mention his own experience in New York, where, in two hundred thousand cases of vaccination of which a record was kept, no cases of smallpox occurred subsequently.

As to the use of humanized or bovine lymph, he was satisfied that the former was equally efficacious with the latter. The lymph, however, must be fresh, and kept at a proper temperature to avoid decomposition.

As regards the number of points at which the virus should be introduced, Dr. Morris agreed with Dr. Toner in thinking that it should be done in several distinct localities for security, though a single good inoculation is sufficient. One point Dr. Toner had not brought out,—the necessity that the system should be *saturated* with the virus.

Dr. Morris, as a rule, repeated the vaccination on the eighth day; often, when the first vaccination has seemed successful, the re-vaccination has run its course. He mentioned in this connection the case of a person who was peculiarly exposed, and who was vaccinated successfully three successive times. Among the causes of the non-success of vaccination he had found the use of dirty lancets and imperfect inspection by the physician, who too often is satisfied with the statement of the patient or friends that it "took."

Constant inspection on the part of the physician is alone satisfactory. As to the material used, good crusts would answer, but he would prefer lymph. In conclusion, Dr. Morris said that a course on vaccination should be a part of the education of every medical student. Vaccination is an art, and cannot be picked up.

Dr. Edwin M. Snow, of Providence, Rhode Island, then read a paper upon the question, "*Does Smallpox become Epidemic, or is it spread solely by its own Contagious Property?*" Dr. Snow said that the phrase "epidemic smallpox" is common in writings upon medical and sanitary subjects. Whenever that disease is prevalent in any place it is freely and generally spoken of as "epidemic," without, apparently, any very definite idea of what is meant by the word.

We have all seen times when the smallpox seemed to spread more rapidly and more easily than at other times, and when vaccination seemed to "take" more readily. But does this condition of things, when it exists, depend upon any epidemic influence of the smallpox-poison? In other words, can smallpox become epidemic? Dr. Snow thought not. Taking as a basis the Fourth Annual Report of the Massachusetts State Board of Health for the year 1872, we find that although it is there stated that a wide-spread epidemic influence of smallpox-poison prevailed, yet, in fact, there was no marked prevalence of the disease at that time in this country, except in Boston and in a few Western cities. As this is simply a question of fact, he might quote a few figures. In the thirteen months including 1872 and the first part of 1873, notwithstanding this so-called epidemic influence of smallpox, there were of 342 towns in Massachusetts 145 where not a single case of the disease, modified or unmodified, occurred. In only 86 towns of 342 were there more than five cases of smallpox or varioloid during that time. Certainly we cannot be expected to believe that an epidemic of smallpox such as the report so vividly describes existed in any town that had less than five cases of smallpox or varioloid in thirteen months.

After giving further statistics, obtained from this report, to the same effect, Dr. Snow continued as follows: Was this, then, an epidemic influence, or can it be explained more rationally in some other way? We understand by an epidemic influence some cause of disease which is wide-spread in its effects upon the people, which is independent of the ordinary or sporadic causes of disease, and which in itself and by itself has some power towards producing disease. Thus, for an illustration, when Asiatic cholera is truly epidemic there is wide-spread over the country an influence which of itself tends to produce cholera, and which, in connection with local causes, does produce it, and without which the cholera cannot exist, even though all the local causes may be present. Can we conceive of any such influence in connection with smallpox? any influence that can be correctly called epidemic? We all acknowledge smallpox to be contagious, and, so far as we know, no case of the disease ever occurs at the present day without contagion, either direct or indirect. There may be causes, like cold, which preserve the contagious virus and make it more active; and there may be causes, like heat, which tend to weaken and destroy its power; but we can conceive of no cause that will have the slightest tendency to produce a case of smallpox without contagion.

Let us consider for a moment what a case of smallpox is. Each case, from its beginning to its close, is a living manufactory, in active operation, of virulent contagious poison. Every part of the body, yes, every pore of the body, exhales this poison; every secretion of the body is saturated with it. It is manufactured in the skin at first in a liquid form, and then dries up, and is preserved in quantities sufficient in each ordinary case of smallpox to give the disease to millions of persons. All the clothing, bedding, and furniture of the sick-chamber are infected with the poison, and give it forth into the atmosphere every time they are moved. More than this, every person sick with smallpox is breathing forth volumes of the contagion with every respiration. Thus the six hundred thousand cubic inches of atmospheric air that each patient inhales each day come forth from his lungs changed into a virulent contagious poison.

It seems to me that the interests of sanitary science require us to repudiate the idea that the prevalence of smallpox may depend upon any mysterious influence called epidemic. The language itself is inconsistent and absurd. Smallpox is the result of a specific poison applied to the human body through the skin or through the lungs, and producing definite specific effects. The vaccination-disease is the result of a specific poison applied to the human body through the skin, and producing definite specific effects. Both the vaccine disease and smallpox are frequently prevalent in our cities to a greater or less extent; the vaccine disease much more so than the smallpox. May we not as well speak of the epidemic influence of the vaccine poison as of the epidemic influence of the smallpox-poison? We do not need the theory of "epidemic influence" to account for the prevalence of smallpox in any place; nor can we agree that such a theory is any valid excuse for such a prevalence of the disease. In this assembly, certainly, the doctrine is established that smallpox is propagated by contagion, and that we have in vaccination an almost absolutely perfect preventive of it. Whatever, then, may be our views in regard to epidemic influence, as sanitarians we must all agree, with reference to any and to all cities and communities, that the prevalence or the absence of smallpox will always be in exact ratio to the neglect or the observance of sanitary measures, including vaccination, by the authorities and by the people.

Dr. Hartshorne agreed with Dr. Snow in most of his views: there seemed, however, occasionally to exist an atmospheric saturation, or a rapid multiplication of morbific matter. A certain periodicity or alternation from generation to generation of susceptibility has been suggested, and seems possible.

Dr. Snow asked if it were likely this number of cases could exist if they had been vaccinated.

Dr. Hartshorne said he thought the average amount of vaccination from year to year was about the same.

Dr. Woodward differed from Dr. Hartshorne, and thought that while vaccination might be largely practised during and immediately subsequent to the general prevalence of the disease, yet a few years afterwards it would be performed to a much less extent.

Dr. Morris remarked, in answer to a suggestion of Dr. Hartshorne that some unvaccinated escaped, that these were probably not exposed.

Dr. Hartshorne disclaimed any intention of making light of vaccination.

Dr. Morris said that the idea of epidemic smallpox was as absurd as that of epidemic vaccinia. A small-pox-hospital under his care during the late prevalence of the disease in New York gained the credit—though isolated and in a suburb—of spreading the affection in the neighborhood. On close investigation, however, it was found that a person was in the habit of buying the clothes of those who died, which garments being cut up into rags were made into carpets in the village, and thus acted as carriers of the contagion.

A conference upon the subject of *Hospital Construction and Management* was then announced. Dr. Kirkbride, being called upon to open the discussion, said that he had come rather to receive than to impart information on the subject.

He had supposed that the questions of the construction of hospitals and of heating and ventilation were settled. We are now told that temporary hospitals are the best. His opinion, however, was different, and he believed that permanent hospital-buildings offered the best advantages.

Dr. Kirkbride then went on to speak of what he believed the proper mode of construction. After speaking of the importance of a good cellar, etc., he said that he thought the question of ventilation ought to have been settled by this time. Heat was necessary; no ventilation is perfect without the use of a fan. At that season of the year when ventilation was most needed windows were of no use. Forced ventilation is as necessary in summer as in winter. This method had been in use for a long time in the institution with which he was connected, and they were so well satisfied with it, that should they erect new buildings they should be arranged in the same manner. The best-managed hospital, he concluded, is always the cheapest.

Dr. I. M. Woodworth, Supervising Surgeon U. S. Marine Hospital Service, read an abstract of his last report "*On Hospitals and Hospital Construction.*" The hospitals built by him had been on the barrack plan. A hospital should be well situated, simple in construction, and one story high. The administration buildings alone should be permanent. The pavilions should be placed north and south, and at a distance apart equal to double their height. Though one story permits better ventilation, yet two-story buildings are allowable. Each patient should be allowed eighteen hundred cubic feet of space. Bath-rooms and water-closets should be entirely separate from the wards, and the latter should be ventilated by a large pipe running to the top of the building. The ward floors should be made of compact wood, the joints being filled in with white lead, and paraffine oil or beeswax should be used over the surface.

Washing the floor while patients are in the ward should not be permitted. The wall should be covered with lime-and-sand plaster, well painted, and frequently washed with soap and water; or it should be white-washed, and scraped at short intervals. Open grates should be employed, whatever other means of ventilation be used. All drains should be well ventilated by pipes passing to the top of the building.

One executive head, well paid, should direct the whole management.

Dr. Ray said his experience went back over a period of thirty-five years. It used to be considered that doors and windows allowed sufficient ventilation. That idea gradually became superseded by the more enlightened opinions of the present day. Forced ventilation was, in his opinion, what is required.

He regretted to hear Dr. Woodworth recommend oiled floors. Oil absorbs dirt, and his experience was adverse to the use of floors such as Dr. Woodworth had spoken about. He thought that washing a floor thoroughly once in two weeks would keep it clean.

Dr. Woodworth explained that he meant boiled linseed oil, which afforded a hard surface.

Dr. Ray in reply said that oiled floors would not shed dirt; all that he had ever seen had been always dull and dirty.

Dr. Ashhurst agreed with Dr. Kirkbride in regarding the objections to permanent hospitals as unfounded. Although from experience he could speak favorably of pavilion wards in military practice, yet in civil hospitals they had the disadvantage of being difficult to administer and requiring more attendants than could be afforded.

As regards the statistics of hospitalism, nothing was more difficult than to compare two institutions together which were not only in different localities and differently managed, but where different operations might be performed for the same injury. The character of the patients, too, would have to be taken into account. In army hospitals during the war, for instance, the men were generally healthy and supported by the *morale* of continued victory. It would be obviously unfair to compare the statistics of these hospitals with those of municipal hospitals filled with the dregs of the population.

Our hospitals are not perfect, but they are far from being the slaughter-houses some have represented them to be. No surgeon would willingly treat severe injuries in the homes of our poorer population, and the choice must lie between these and the hospital. Dr. Ashhurst was glad to see such unanimity of ideas as regards the essentials of hospital construction. One-story hospitals are theoretically better, but they take up too much room.

Dr. Woodworth, he was glad to observe, admitted that two-story hospitals were proper. Our city hospitals usually have three stories, but the upper one is generally held in reserve. As to the question of permanent or temporary hospitals, he believed the permanent plan the best.

Dr. Billings agreed with Dr. Ashhurst that the differences of opinion on this question were more apparent than real. What is wanted is sufficient dilution of the effete air. In old times eight hundred cubic feet used to be allowed to every patient in a hospital, but now the allowance has risen to twenty-five hundred feet, and some even recommend thirty-five hundred feet per hour; though, indeed, others think that three hundred feet per hour is enough. A municipal hospital should have a resident medical superintendent. The staff will not take care of hygienic matters.

Dr. Harvey Brown's "*Report upon Yellow Fever on the Dry Tortugas*" was referred to the executive committee, as was also Dr. Rodenstein's "*Notes upon the Causation of Scarlatina, etc.*"

Dr. Benjamin C. Miller then read a "*Report upon the Methods of Treatment of Gases from Rendering-Tanks, and the Disposal of Tank Offal.*"

At the evening session discourses were delivered by General E. L. Viele, of New York, on "*Principles and Practice in Drainage and Sewerage in Connection with Water-Supplies,*" followed by a discourse by Prof. Edward Orton, of Ohio, entitled "*Certain Relations of Geology to the Water-Supplies of the Country.*"

THIRD DAY—MORNING SESSION.

After disposing of a certain amount of business, election of officers, etc., Dr. Stephen Smith, the President of the Association, read a paper "*Upon the Reciprocal Relations of the Public Health Service, and the Highest Educational Qualifications of the Medical Profession.*" After giving a general sketch of the condition and status of the medical profession at different periods of the world's history, the speaker referred to the present position of the profession in this country, where, according to law, "*the term physician may be applied to any one who publicly announces himself to be a practitioner of this art, and undertakes to treat the sick either for or without reward.*"

To the Public Health Service we must look for the first advance in the future, and when the needed reforms in medicine are effected it will take its proper rank in society and in the state. Purified, elevated, it will again be regarded, in its power to prevent and cure disease, as a divine art.

Dr. Sturgis, of New York, then read a paper entitled "*How does Syphilis affect the Public Health?*" He had divided the subject into three heads:

1. Is syphilis of common occurrence?
2. Can it be considered a disease fatal to life?
3. Does it favor the development or fatally influence the course of other diseases?

The statistics examined embraced only cases of syphilis properly so called, and did not include gonorrhœa or "chancroid." The facts were obtained from the reports of the Armies and Navies of Great Britain and the United States, the reports of the mercantile marine of the latter, the sum total of poor patients treated during the year 1873 at the various hospitals and dispensaries of New York City, etc.

In the U. S. Army, the statistics of mean strength from 1840 to 1859 show a percentage of 1.1 cases of syphilis. For the five years from 1870 to September, 1874, inclusive, the percentage of syphilis in the Department of the East was 4.61.

The report of the mercantile marine for the United States for 1872 and 1873 gives 15.33 per cent. as the proportion of syphilitic to other diseases.

The report of the mercantile marine of New York City from January, 1871, to October, 1874, gives the percentage of syphilitic to other cases treated as 16.19.

Reports of the British Army for 1869, 1870, and 1871 show the percentage of syphilitic cases as 7.6 of the entire force.

The statistics of the Naval Hospital of Brooklyn for the years 1870 to 1874 show that 8.59 per cent. of all cases treated were syphilitic.

The percentage of syphilis among the poor of New York, as shown by reports of hospitals and dispensaries, is 1.5 per cent. of all cases treated. The defective registration of patients is so prevalent that this figure is probably too low.

The English reports of Mr. Wagstaffe show that in London nearly seven per cent. of all the poor who receive medical relief are affected by syphilis.

The figures of M. Lecour show that in Paris the condition of affairs is about the same; and these statistics, as a whole, indefinite and variable as they are, are presented with a view of showing that the disease is probably widely spread.

In regard to the second question, whether syphilis can be regarded as the cause of a large number of deaths, Dr. Sturgis thought it could not.

Statistics were collected from the leading London hospitals, from the Charity Hospital, New York, and from various other sources, and with a result likely to prove surprising to those who regard acquired syphilis as a fatal disease. At St. Bartholomew's, during the twelve years from 1860 to 1871 inclusive, one per cent. of all the syphilitic cases treated died.

At St. Thomas's, for six years (1866 to 1871 inclusive), four per cent. of all syphilitic cases under treatment died.

At St. George's, for five years (1866 to 1870 inclusive), 1.5 per cent. terminated fatally. At the London, during three years a little over three per cent. died. At the Charity Hospital, Blackwell's Island, during four years a little over .3 of one per cent. died.

These figures comprise only the secondary and tertiary forms; primary and congenital syphilis are not included. The immediate causes of death were ascertained in sixteen of these cases, and it would be difficult to ascribe them all to syphilis, except indirectly. It should be noted that in all the cases of death the end was accelerated, if not caused, by diseases which are in themselves serious, perhaps actually fatal, apart from any consideration of syphilis. Turning to the mortuary record of cities, we find in London in 1871 the percentage of deaths from syphilis to the total number, .8. In New York, for 1871, percentage of deaths from syphilis to total number, 1. Philadelphia, 1871, percentage of deaths from syphilis to total number, .2.

In face of these figures, would it be fair to consider syphilis as a fatal disease? Decidedly not.

As regards congenital syphilis, the case is different. In London (1871), the percentage of deaths under five years to the total deaths from syphilis was over eighty-nine; in New York, over eighty-four; in Philadelphia, over sixty-three: truly, a wholesale massacre of the innocents. Large as these figures seem, they are borne out by the statistics of other countries. During recent years, the percentage of mortality from syphilis has apparently increased, probably on account of more accurate registration.

The effects of syphilis are serious enough; but Dr. Sturgis most earnestly protested against exaggerating them. The danger to the public health from syphilis lies not so much to those who acquire the disease as to those who inherit it.

As to the third question,—Does syphilis favor the development, or does it fatally influence the course, of other diseases?—Dr. Sturgis brought forward much carefully-prepared statistical matter, as well as details of cases coming under his own observation.

In summing up his communication, Dr. Sturgis stated the following conclusions:

1. Syphilis is probably widely spread, possibly increasing in extent. This opinion, from the imperfect means at our disposal, must, for the present at least, remain more or less as conjecture.

2. The question of the fatality, so far as the acquired forms of the disease go, may be answered in the negative; but its excessive mortality in the congenital variety renders it serious and alarming. One cause of consolation remains, however,—*i.e.*, that the disease does not probably extend to the third or fourth generation, usually dying out with the second; nor does it transmit any specially vitiated vitality to the posterity of the original sufferer.

3. In the third proposition the same condition is found, viz., the comparative harmlessness of acquired and the fatality of congenital syphilis over the course and development of other diseases.

The danger to the public health lies more in the transmitted than in the acquired disease, and whether it be permanent and dangerous or only temporary and remediable must remain for future investigation to show.

Dr. Sturgis closed his admirable paper by a suggestion for the better registration of this kind of cases and for more trustworthy observation, quoting the recommendations of the International Statistical Congress held at St. Petersburg in 1872, at length.

Dr. Sturgis's paper was succeeded by the following:

A paper upon "*Hay Fever or Summer Catarrh:*" Original Researches upon the Geographical, Topographical, and other Etiological Characteristics of this Malady, with reference to its Causation and Prevention. By George M. Beard, M.D., New York.

A paper upon the "*Influence of the High Altitudes and Climate of the Table-land Country of the Rocky Mountain Region upon Health and Disease.*" By B. E. Fryer, M.D., Surgeon U.S.A.

"*Abstract of Special Reports by Army Medical Officers on the Effect of Mountain Climates upon Health.*" Presented by J. S. Billings, M.D., Assistant-Surgeon U.S.A.

"*Certain Perils of the School-Room which demand the Attention of Educational and Sanitary Authorities.*" By A. N. Bell, M.D., Brooklyn, New York.

A paper upon the "*Stealthy Introduction and Spread of Infectious Diseases in Large Cities.*" By John C. Peters, M.D., New York.

A paper upon "*Suicide in Large Cities with Reference to certain Sanitary Conditions which tend to prevent its Moral and Physical Causes.*" By Allan McLane Hamilton, M.D., New York.

After the reading of these papers a sanitary conference was held, at which the comparative merits of water-closets and privy-vaults were discussed, after which the Association adjourned to the evening session, which was held at Horticultural Hall.

At this session discourses were delivered by Hon. Dorman B. Eaton, of Washington, on "*Health Laws and the Interests and Obligations of the State and National Governments pertaining to them;*" and by Hon. L. H. Steiner, M.D., of Maryland, on "*Health a Prerequisite of National Success in Peace and in War.*"

Short addresses were also made by Rev. Dr. Beadle and Dr. Agnew. On motion of Dr. Gross, the thanks of the Association were tendered to the gentlemen who had delivered discourses, and the Association adjourned.

The meetings of the Association were, on account of pressure of business, prolonged over Friday morning, at which time Prof. Maisch's paper upon "*Sanitary Relations of Pharmacy and the Materia Medica*" was read.

Prof. Maisch, after speaking of the importance of pharmacy to the general welfare, and of the vast amount of adulterated drugs formerly supplied to the American market and still supplied to a considerable extent, went on to allude to the various "formulæ" and special preparations now so much in vogue, and which are often inert or harmful.

In the way of remedy for these acknowledged evils, he suggested that the medical profession recognize the want of household remedies by publishing authoritative formulæ for the use of pharmacists, who may compound them at their counters and keep them on hand for the ready and convenient supply of all the real wants of families and of individuals in this direction. Such a measure would go far towards abolishing a large number of nostrums; but it would be advisable not to neglect the direct instruction of the public, by publishing tracts on sanitary subjects, by the delivery of popular lectures, and by instructing the rising generation in the means of preserving the health and in the dangers of the injudicious use of all drugs.

An aid to this would be an almanac gotten up by some competent authorities under the auspices of an enterprising publisher, and which should contain hygienic rules, first help in accidents, antidotes for poisons, etc. Such a publication might be paid for by advertisements, and would be likely to do much good.

Prof. Maisch concluded by stating that the most effectual method of securing all the advantages of American pharmacy to public health would be to insure the proper qualifications of the pharmacists. This is one of the main purposes of the local Pharmaceutical Association, and of the national representative body of pharmacists. To accomplish this, among kindred objects, those societies have earnestly labored for years, and in their efforts deserve the support of all having the welfare and safety of the public at heart.

Prof. Gross then introduced resolutions relative to the establishment of a National Bureau of Health.

Among the various matters of business transacted on Friday morning may be mentioned the appointment of committees on the Use of Poisons and on National Sanitary Information, and also a special committee to devise a project of laws to meet the wants of the State Boards of Health.

The following officers were then elected for the ensuing year:

President, J. M. Toner, of Washington, D.C.

First Vice-President, E. M. Snow, of Rhode Island.

Second Vice-President, Prof. Henry Hartshorne, of Philadelphia.

Secretary, Elisha Harris, of New York.

Treasurer, John R. Rauch, of Illinois.

Executive Committee, J. S. Billings, U.S.A.; Stephen Smith, New York; Moreau Morris, New York; J. J. Woodward, U.S.A.; James A. Stewart, Baltimore, and A. N. Bell, New York.

The following resolutions were then presented by Dr. Hartshorne:

"*Resolved*, 1. That, for a city properly arranged and conducted, abattoirs, subject to municipal regulations, are always preferable to a number of private slaughter-houses.

"2. That the best practicable management of large abattoirs, with cattle- and hog-yards, cannot be depended upon at all times to prevent their drainage from contaminating water and the atmosphere in its vicinity.

"3. Therefore, such establishments should be located as far as practicable from the centres of population, and, if possible, upon tide-water."

The mover called upon Dr. Rauch, of Chicago, for information relative to his experience in the matter at Chicago. Dr. Rauch said that the many improvements made had done away, in a great measure, with the objectionable features of slaughter-houses; but, under certain conditions of the atmosphere, a whole section of the city would be pervaded with the disagreeable odor. He thought that, as a general thing, the drainage from abattoirs should not be allowed to enter a fresh-water stream, unless the current was very swift. In Chicago the value of property had always been greatly diminished by the establishment of abattoirs, for people kept at a respectful distance from them. He believed, however, it was possible to conduct abattoirs so as not to be injurious to the public health.

The resolutions offered by Dr. Hartshorne were, with some slight modifications, adopted. Dr. Goodwin then presented the following:

"*Resolved*, That this Association urge upon the Governors and Legislatures of each and every State in the Union the importance of enacting laws creating State Boards of Health and providing adequate measures for sanitary administration throughout each State.

"*Resolved*, That a copy of this resolution be forwarded to each Governor and Legislature, duly signed by the President and Secretary of the Public Health Association."

The subject was referred to the special Committee on Legislation.

The Association then adjourned, to meet in Baltimore on the second Tuesday in November, 1875.

BIOLOGICAL AND MICROSCOPICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES.

NOVEMBER 2, 1874.

DIRECTOR W. S. W. RUSCHENBERGER, M.D., in the chair.

DR. J. H. MCQUILLEN, chairman of the committee having charge of the Semi-Annual Exhibition held the previous month, read his report, of which the following is an abstract:

"*Mr. Director, and Gentlemen,*—In presenting a report of the Microscopical Exhibition given under the auspices of the Section in the Academy, on Monday evening, October 5, 1874, it is but proper to state that it was proposed and agreed upon by the committee, that in the arrangement of the specimens they should be classified in such a manner as to give a comprehensive view of the subjects presented, by bringing objects related to one another under the same head; in this way adding not only to the interest of the exhibition, but also increasing thereby the opportunity of acquiring valuable information on the part of those who would be present. This plan was carried out as far as practicable, and the desired result obtained. The microscopes, forty in number, were arranged on tables in three rooms of the library. The principal, if not the only, drawback of the exhibition was the contracted space, and the impossibility of properly accommodating the large number of persons present.

"Dr. JOSEPH G. RICHARDSON showed the circulation of the blood through the tail of a so-called triton in Holman's siphon life-slide; also five other specimens of blood, among which human and sheep's blood were exhibited under Powell and Leland's dry, and Tolles' immersion one-fiftieth lenses, respectively. Accomplished as this was in a crowded room, where hundreds of persons were jostling against each other, it places beyond a question of doubt the possibility of making a similar demonstration in a crowded court-room, and of not merely satisfying, under such circumstances, the experienced microscopist, but in addition the most ignorant and obtuse juryman. Made as this was for the first time in public on that occasion, it may be truly said that this demonstration, in connection with his previous valuable investigations in the same direction carried on in the seclusion of his private office, marks an era in medical jurisprudence.

"Dr. J. H. MCQUILLEN had under his care an ingenious class-microscope, loaned to him for the occasion by Prof. Oliver Wendell Holmes, who designed and partly constructed it, and who uses it along with several others in the lecture-room. It is so arranged that transparent or opaque objects can be shown by changing the position of the lamp. He also exhibited a section-cutter, designed by Dr. Edward Curtis, of New York, for making fine sections of soft tissues, and four beautiful sections of the eye, prepared by the same gentleman with this instrument, and kindly loaned by him.

"Dr. W. V. MCCLURE showed nine excellent sections of the eye, chiefly hæmatoxylon, carmine, and osmic-acid stainings of his own preparation, under Hartnack's lenses, from No. 2 up to No. 10, which latter is about a one-sixteenth immersion objective.

"Dr. GEORGE S. ALLEN, of New York, exhibited a specimen of borax by polarized light, using a Herepathite crystal half an inch in diameter, as an analyzer, giving perfect definition under the highest powers, with polarizing properties equal to the Nicols' prism. He also showed the Podura scale under a famous one-tenth immersion Tolles' objective, kindly loaned by Mr. Charles Stodder, of Boston.

"Dr. C. N. PIERCE displayed, among other objects, rotifera in active operation.

"Dr. R. S. KENDERDINE exhibited, for himself and Miss Gerty Bolles, Volvox globator, skin of the sole, and pollen of Hibiscus.

"Dr. C. S. BOKER had on exhibition Hyalodiscus nobilis.

"Dr. ISAAC NORRIS showed two varieties of Browning's spectroscope, also a specimen of human lung injected, and arranged diatoms.

"Mr. WILLIAM H. WALMSLEY exhibited Müller's new typen-platte, a butterfly's wing, platino-cyanide of magnesium polarized on Crouch's binocular, and Pleurosigma angulatum on Queen's new student's microscope with a one-fifth objective.

"Dr. A. G. REED exhibited very successfully the circulation of blood in a triton under a four-tenths inch lens. This was shown on a circular revolving table, admirably adapted for microscopical purposes. He likewise displayed a very ornamental cabinet for microscopic slides, made of walnut, with boxwood trimmings, and sides of Hungarian ash.

"Dr. J. GIBBONS HUNT showed a number of beautiful botanical slides, double stainings, as follows: 1, common hop (lupulus), showing latex-vessels filled with green color, all other parts violet: 2, cystoliths in nettle (urtica), colored green, and showing filaments attaching them to the cell-wall, all other parts violet; 3, Lygodium palmatum spores and sporangia, all green color, other tissues violet; 4, Woodsia obtusa, theca and spores green; indusium, showing cell-contents; other parts violet. These structures presented every cell distinctly in natural relationship of parts, *without dissection.* The illumination of delicately-stained tissues, especially double stainings like these, by artificial light, is important. The light was concentrated parallel rays, passed through an achromatic bull's-eye lens of least spherical aberration, the best means of displaying such work by artificial light.

"Dr. CARL SEILER exhibited a number of beautiful micro-photographs of his own production; also, under sundry microscopes, fern from the stomach of a mastodon, spinal vessels, isolated and in position, transverse section of elephant's bone, and human liver.

"Drs. T. C. STELLWAGEN and E. L. HEWITT had under their care ten microscopes, with sections of bone and the teeth of man and animals, showing enamel, cementum, and dentine in various phases; the relations of these tissues being made evident to all by means of a papier-maché model of a molar tooth, twenty times the natural size, the property of Dr. Stellwagen.

"Mr. CHARLES STODDER, of the Boston Optical Works, in compliance with an urgent invitation of the corresponding secretary, sent on a one-fiftieth immersion (elsewhere noticed), and a one-tenth immersion which has been pronounced a very valuable lens.

"Messrs. QUEEN & Co. showed four microscopes, the most remarkable being one of Beck's large best binoculars, made of aluminum, the lightest of its size ever produced, and yet so well balanced as to be entirely firm.

"Mr. JOSEPH ZENTMAYER displayed three microscopes, viz., student's, grand stand, and binocular, the workmanship and execution of which were of the most perfect character."

Dr. J. GIBBONS HUNT commented upon the report, especially dissenting from the commendation bestowed upon the performances of the one-fiftieth objectives of Powell and Leland, and of Tolles, and also from the favorable notice given to the Tolles' one-tenth immersion, which, he stated, was probably in reality only a one-eighth lens, inferior in power to Beck's one-tenth.

Dr. JOSEPH G. RICHARDSON read a paper entitled "Notes on the Performances of Two One-Fiftieth Objec-

tives" (see p. 132), which was referred to a committee composed of Drs. J. G. Hunt, I. Norris, and J. Tyson.

Dr. JAMES TYSON remarked that whilst it was certain that the difference in size of the corpuscles of human and sheep's blood then exhibited on the table under the two fiftieths by Dr. Richardson was quite perceptible, yet so different did the red blood-disks appear beneath these objectives from what they did under the powers he had ordinarily used, that he would hardly be willing to say that they were blood-corpuscles, if he were ignorant of their true nature.

Dr. RICHARDSON said that in these specimens, only this very difference in size was intended to be shown; the problem he had set himself to solve *in this particular instance* being whether among corpuscles known to be those of blood (by the revelations of moderate powers of the microscope, aided by chemical tests for example), we could make a differential diagnosis by the size alone between those of man and those of the sheep.

Dr. J. GIBBONS HUNT observed that, putting aside the acrobatic feats of the one-fiftieth in the resolution of diatoms by very oblique light, he had yet to see any good definition by it upon an object axially illuminated. As displayed before him, he thought that the two one-fiftieth objectives showed conclusively that no gain in real histological work is secured by using lenses of high power, which afford such imperfect definition, and are by no means achromatic.

Dr. J. H. MCQUILLEN stated that he had purposely avoided expressing any opinion in regard to the one-fiftieth, as Dr. Richardson had prepared a paper upon its qualities. With respect to the objections which have been advanced, that spherical and chromatic aberration had not been entirely corrected, the question arose, If this be true, is the instrument therefore useless? The fact that with it, and the one-fiftieth of Powell and Leland, the difference in size between the blood-corpuscle of man and the sheep was defined in the presence of a crowded audience, in the most unmistakable manner, indicates that it is not *useless* but *useful*. It must not be forgotten that Sir Isaac Newton long ago asserted that it was impossible to construct an achromatic telescope or microscope; and yet, with the imperfect instruments used prior to and during his time, important and valuable discoveries were made by astronomers and microscopists; some of which, observers with the improved instruments of our own day have only confirmed. It was, he believed, assuming too much to say that the one-fiftieth could not be used to advantage in histological investigations. By its aid, in the not far distant future, important and valuable discoveries might possibly be made.

Dr. HUNT granted that the difference in size of the two kinds of blood-corpuscles shown upon the table under an amplification of twenty-five hundred diameters was sufficiently demonstrated, and that therefore it was obvious that high magnifying power had been obtained; the difficulty which we now needed to have overcome was bad definition. As yet spherical and achromatic aberration were not, in his opinion, fully corrected in these high objectives, although opticians were trying to sell them as being perfected. Indeed, no perfectly achromatic lens has so far ever been constructed, so that Sir Isaac Newton's prophecy still holds good up to the present day.

Dr. RICHARDSON desired in this connection to call particular attention to the statement in his paper, that the longitudinal lines of Surirella gemma were clearly visible under the one-fiftieth, because with his scanty knowledge of the tricks of illumination by oblique light he could only bring them rather imperfectly into view with the Tolles' one-tenth, which had been pronounced by high American and English authorities—such as Col. Woodward and Mr. Wenham—a superior lens.

Dr. HUNT reminded the members that these lines and those of other difficult diatoms could all be resolved, by even lower powers, with perfect ease.

Dr. RICHARDSON replied that this easy resolution of difficult diatoms under low powers certainly required a greater skill in the management of the light than he possessed, since he had completely failed in repeated attempts; and yet, with exactly the same ignorance of these ingenious artifices as stated above, he brought the fine lines (of which he had almost begun to doubt the existence) clearly and sharply into view at the first trial by monochromatic sunlight with Tolles' immersion fiftieth. Moreover, he felt sure that any unprejudiced microscopist would perceive that a lens which was capable of showing the finest markings on the Diatomaceæ as distinct lines or dots must be similarly capable of showing analogous delicate lines and dots in the cells, fibres, and membranes of human and animal tissues; and since these lines and dots *make up absolutely all that we know of the morphological characters of histological elements*, lenses which, like the one-twenty-fifth and one-fiftieth, show finer markings, will almost necessarily prove of greater practical value in histological research.*

REVIEWS AND BOOK NOTICES.

A GUIDE TO THE PRACTICAL EXAMINATION OF THE URINE, FOR THE USE OF PHYSICIANS AND STUDENTS. By JAMES TYSON, M.D., Hospital Lecturer on Pathological Anatomy in the University of Pennsylvania; one of the Physicians and Pathologist to the Philadelphia Hospital, etc., etc. Pp. 182. Lindsay & Blakiston, Philadelphia, 1875.

Almost every one of our seventy thousand practitioners of medicine feels at times the want of a reliable guide to the more complete examination of the renal secretion in cases of doubt and difficulty; and since this book admirably meets just such a universal necessity, we are convinced it will find a multitude of readers in all ranks of the profession. Being a larger and more exhaustive work than those of Flint and Wickham Legg on the one hand, and, notwithstanding it sets forth the valuable German methods of approximative and exact quantitative analysis, less cumbrous or expensive than those of Beale, Roberts, Harley, etc., on the other, we welcome it as an important aid towards wider cultivation of the true science of medicine by facilitating accurate investigations of the urine even among busy physicians in general practice.

Dr. Tyson commences with a short account of the theory of renal secretion, the physical and chemical characters of the urine, and the reagents and apparatus used in its analysis. Excellent rules are then given for detecting the presence of albumen, sugar, coloring-matters, bile, urea, uric acid, chlorides, phosphates, and sulphates; and minute instructions for approximative and quantitative determination of most of those ingredients by volumetric analysis are supplied.

* It is well known that some cases occur where a diagnosis between cancer-cells and the cells of vesical epithelium would be important, and this, if ever accomplished, will, perhaps, be made by the discovery of some finer markings upon one or the other morphological elements than have yet been described,—the process being comparable to that by which we would distinguish between twin brothers at the distance of say one thousand feet, when by a telescope of moderate power we might recognize the outlines of their features and guess which was Castor and which Pollux, but with a very powerful optical instrument—the analogue of a one-fiftieth objective—which would *define delicate lines*, we might count the eyelashes of each, and, on a previously known difference in their number, base an accurate differential diagnosis.

The subject of urinary deposits is carefully treated of in the remaining seventy pages of the volume, being illustrated by a plate and numerous wood-cuts representing the microscopic characters of various crystalline sediments, and also the organized constituents, such as mucus, pus, and blood; a proportionately large space being duly allotted to the important subject of tube-casts in Bright's disease. A few pages upon the differential diagnosis of the forms of albuminuria are added, and constitute, in our opinion, the most admirable, as well as the most practically useful, chapter in the entire book.

About half the wood-cuts—thirty, or rather twenty-nine in number, since Fig. 14 only differs numerically from Fig. 10—are given as original, and the remainder have been well *selected* from the works of Harley and others. In our opinion their value would have been much increased had those representing microscopical appearances been furnished, as is always done by Dr. Beale, with a statement of the magnifying power under which they were drawn.

The author's style is generally perspicuous; concise, definite, and easily comprehensible statements being usually made in regard to the subjects treated of, although occasional infelicities of diction occur. For example, we should prefer an Anglicized version of the following, on p 21: "Requiring an acid urine to keep them (earthy phosphates) in solution, a diminution of the degree of this may result in their precipitation, which is further increased by an alkaline reaction."

The lithographic plate, exhibiting very accurately the usual appearances of the so-called pigment-flakes, or pigmentary particles, has a peculiar interest, and will doubtless prove very useful in explaining one of their common puzzles to students, as well as in preventing them from falling into the lamentable yet ludicrous blunder of Dr. Roberts and others in regard to these microscopic dirt-pits upon the glass slides.

The Table of Contents is omitted, and obvious misprints occur on pages 28, 48, 92, 146, and 162, but the book as a whole is remarkably free from typographical errors, and shows the results of that faithful and painstaking carefulness which so eminently characterizes its learned author.

In paper, press-work, and binding, the volume will well sustain the high reputation of the distinguished medical-book publishers whose imprint it bears.

J. G. R.

GLEANINGS FROM OUR EXCHANGES.

Occipito-Posterior Positions of the Head (*The Edinburgh Medical Journal*, October, 1874).—Dr. Angus Macdonald, as the result of an analysis of twenty-six operative cases, has arrived at the following conclusions:

1. In occipito-posterior positions, if these are persistent, we may safely assume that we have some pelvic peculiarity or disproportionately large head to deal with, and, as a general rule, all attempts at artificial rectification of the position of the head will prove abortive, and are even dangerous if attempted to be effected by means of levers, forceps, etc.

2. The only exception is when temporary delay is occasioned from accidental displacement of a small head; in which case one has the alternative of waiting till the normal powers of parturition effect delivery, or of facilitating that event by timely rectification of the head by the hand.

3. In cases which threaten to end as "face to pubes," and are at the same time decidedly difficult, it is best to pull the head through cautiously, and to abstain from every attempt at rectification of the head,—special care being taken to guard the perineum, as the occiput, when passing over it, greatly distends it.

4. In cases of obstructed occipito-posterior positions, in which the rotation takes place at the outlet of the bony pelvis, while the head is in the grasp of the curved forceps, there is very great danger in the case of primiparæ of the forceps lacerating the soft parts, on account of the oblique position into which they are thrown.

5. To prevent this accident, either, 1, the blades ought to be cautiously removed, the head fixed in position, and the uterus allowed to finish the expulsion of the head; or, 2, the curved instruments may be reapplied, adjusted to the altered relation of parts; or, 3, a straight, short pair may be applied, and the further advance of the head thereby secured.

Renal Calculus (*The Lancet*, October 24, 1874).—At a recent meeting of the Pathological Society of London, Dr. Cayley showed a renal calculus which was discharged through a fistulous opening in the loin. The patient is now 33 years of age, and in good health. Seven years ago he suffered from an abscess in the right lumbar region, which discharged for about three years. About six months after its formation, the calculus came out. It was of irregular club shape, the size of a hazel-nut, with a facet at the narrow end as if it had been broken off. Two smaller calculi subsequently ulcerated out, one close to the crest of the ilium, and one below the great trochanter, the scars still remaining. The patient was employed at chemical works where sulphite of arsenic is made, and it was a question whether there was any genetic influence in his occupation.

Unsuspected Calculi in the Bladder (*The Lancet*, October 10, 1874).—Mr. John Foster reports the case of a gentleman, æt. 76, who had a narrow stricture at the orifice of the urethra. He had considerable frequency in making water, but had suffered no pain, and never passed any blood. The stricture was divided, and a catheter introduced to ascertain if he emptied his bladder. With the urine came a large number of very small calculi, and, by injecting warm water, over a thousand were washed out. They had never caused him any inconvenience.

NOTES AND QUERIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Dr. H. Y. Evans will read a paper before the Philadelphia County Medical Society, November 25, 1874, at 8 o'clock P.M.

Subject, Rest in the Treatment of Pulmonary Disease.

All regular practitioners of medicine in the city are invited.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY, FROM NOVEMBER 17 TO NOVEMBER 23, 1874, INCLUSIVE.

Hubbard, Van Buren, Assistant-Surgeon.—Assigned to duty at Jackson Barracks, La. S. O. 187, Department of the Gulf, November 17, 1874.

Kinsman, J. H., Assistant-Surgeon.—Relieved from duty at Fort Abercrombie, Dakota Territory, and to report in person at these Headquarters. S. O. 252, Department of Dakota, November 16, 1874.

Cronkhite, H. M., Assistant-Surgeon.—When relieved by Assistant-Surgeon Dickson, to comply with War Department Orders 233, c. s. S. O. 186, Department of the South, November 17, 1874.

Yeomans, A. A., Assistant-Surgeon.—Granted leave of absence for three months, on Surgeon's Certificate of Disability. S. O. 250, A. G. O., November 17, 1874.

Dickson, J. M., Assistant-Surgeon.—Assigned to duty at Savannah, Georgia. S. O. 186, c. s., Department of the South.

Johnson, Henry, Medical Storekeeper.—Granted leave of absence for three months. S. O. 253, A. G. O., November 20, 1874.